Atmos. Chem. Phys. Discuss., 6, S3582–S3584, 2006
www.atmos-chem-phys-discuss.net/6/S3582/2006/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "The density of humic acids and humic like substances (HULIS) from fresh and aged wood burning and pollution aerosol particles" *by* E. Dinar et al.

Anonymous Referee #2

Received and published: 5 October 2006

In the paper the authors report on the measured effective densities for HULIS isolated from atmospheric aerosols, for fulvic acid and for humic acid samples from aquatic and terrestrial sources. The effective densities were compared with the chemical and physical properties of the particles. The manuscript contains interesting results and appropriate for ACP after revision.

Specific comments:

Page 7836, line 2: However the density and shape of the particles affect their lifecycle and transport, the size of the particles has more important effect on these processes.

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Page 7845, line 19: Please give more detailed information how did you determine the uncertainty of the measurements.

Page 7846, line 3: Please include the reference for the calculation of the aromaticity and average molecular weight into the text. Could you give an estimate on the uncertainty of the aromaticity and molecular weight calculations, which based on absorption measurements? Using the equations reported in Dinar et al. (2006b), the higher molecular weight will result higher aromaticity. Is it not possible that compounds with equal molecular weight contain different amount of aromatic rings?

Table 2: If the fractions F1, F2, etc. represent the same fractions as in the Dinar et al. (2006b) paper, what is the reason of the differences between the calculated and expected (based on the nominal molecular weight cut-offs of the membranes) number averaged molecular weight? Is it not possible that other fractionation effects occur during the filtration procedure?

Comments to the figures: I suggest replacing the lines, which guide the eye to regression lines.

Technical corrections:

The references should be revised: Hoffer et al (2005) paper is published on the ACP website, and the authors do not give the reported confidence interval for their density measurement.

There are some typist's error in the manuscript:

Page 7836, line 23: The abbreviation ĎSubS" and ĎSS" are introduced but not used in the manuscript.

Page 7846, line 10: The reference to the C/O measurements and acidity measurements is missing.

Page 7848, line 9: practices should be particles.

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Page 7860: average molecular weight Mn should be number averaged molecular weight, MN.

Figure 1: Please use larger fonts - they are difficult to read on a printout.

Figure 2: The unit (V) of the DMA voltage is missing. What is the meaning of the dynamic shape factor if its value is less than 1?

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 7835, 2006.